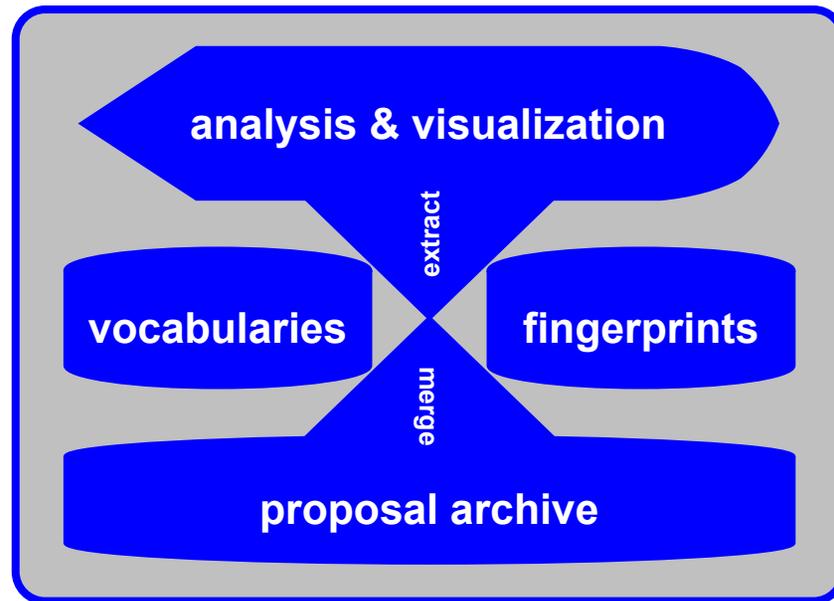


Project eRA
Knowledge Management Initiative

What is “*knowledge management*”?



Creating Research Proposal Profiles

Based on MeSH Thesaurus

Proposal Profiling

Enter Grant Number in single quotes

'1 R01 CA096507-01 A1' Find

Search Proposals by Grant Number



[KSHV Replication and the Natural History of AIDS-KS](#)

Grant#: 1 R01 CA096507-01 A1

Author: Campbell, T

[Research Plan Fingerprint](#)

View Entire Proposal

View Entire Research Plan

CONTINUATION PAGE Principal Investigator/Program Director: Campbell, Thomas B.
(Last, first, middle)

INTRODUCTION TO THE REVISED APPLICATION

a. Previous application priority score: 182 (percentile 34).

b. Summary of strengths of the previous application. The reviewers described the previous application as a "very well written" proposal of significant studies that address an important question in Kaposi's sarcoma. The proposed studies were described as novel approaches to a medical problem of "critical importance" in African populations. The reviewers suggest that the proposed studies would likely yield important information on the biology of KSHV infection, and that these results would help to develop strategies to predict worse outcomes and better use of limited resources in developing countries in Africa. The existing collaboration between American and Zimbabwean investigators was felt to be a major strength of the application. Overall, the application was described as "excellent" and "truly innovative." The investigators and environment were described as "outstanding."

c. Summary of weaknesses of the previous application. Although the previous application was met with high enthusiasm, enthusiasm was dampened by weakness in the proposed studies. An in-depth critique by the reviewers identified the following areas of weakness: 1) The proposal should be more focused. 2) In some areas, descriptions of the preliminary data were not clear. 3) Adequate preliminary data to demonstrate the feasibility of some proposed studies were not provided. 4) Other cofactors that could influence KS disease progression were not addressed.

d. Response to the critique of the previous application. The reviewers have provided valuable suggestions to strengthen the proposal. The investigators agree with the reviewers comments and in the revised application we have attempted to address each issue they raised. In the revised application the reviewers comments are addressed as outlined below:

1) The proposal should be more focused and streamlined. The intended focus of the previous application was not articulated well. As stated in the previous application, AIDS-KS is a major health problem in resource-poor countries of sub-Saharan Africa. Better approaches to the treatment and management of persons with AIDS-KS in these countries are needed. In particular, new

View Research Plan Fingerprint

Title: "KSHV Replication and the Natural History of AIDS-KS"

Thesaurus: Mesh2002(English)

- 100 Herpesvirus 8, Human
- 9 Ecthyma, Contagious
- 8 Sarcoma, Kaposi
- 8 Plasma
- 7 Polymerase Chain Reaction
- 7 Africa, Western
- 4 Virulence
- 4 Herpesviridae
- 2 Nevada
- 2 Lymphocyte Count
- 2 Saliva
- 1 Ganciclovir
- 1 Viral Markers
- 1 ney U Test

NOTE: Fingerprint topics derived from MeSH Thesaurus

Grant Reviewer Selection

Accurate handling of incoming grant proposals for the SRA

Enter Grant Number in single quotes

'1 R01 CA096507-01 A1'

Find

List possible Candidate Reviewers based on topics within Research Proposal

Grant Reviewer Selection

[KSHV Replication and the Natural History of AIDS-KS](#)

Grant#: 1 R01 CA096507-01 A1

Author: Campbell, T

[ResearchPlan](#)
[Fingerprint](#)

Recommended Reviewer List

[Hayward, Gary S](#)

[Chandran, Bala](#)

[Jung, Jae U](#)

[Hayward, S D](#)

[Yuan, Yan](#)

[Wood, Charles](#)

Institution

JOHNS HOPKINS UNIVERSITY A
UNIVERSITY OF KANSAS MEDICAL
CENTER

HARVARD UNIVERSITY (MEDICAL
SCHOOL)

JOHNS HOPKINS UNIVERSITY A

UNIVERSITY OF PENNSYLVANIA A

[Compare](#)

[Compare](#)

[Compare](#)

[Compare](#)

[Compare](#)

Identify Qualified Reviewers by comparing fingerprints

Reviewer: Hayward, Gary S

Title: KSHV Replication and the Natural History of AIDS-KS

Name: Hayward, Gary S

Thesaurus: Mesh2002(English)

100	Herpesvirus 8, Human
100	Ecthyma, Contagious
100	Cytomegalovirus Infections
95	Immunoglobulin Class Switching
91	Virus Latency
83	Pregnancy Trimester, First
66	Retinitis
64	nors
64	Tumor Cells, Cultured
59	Immediate-Early Proteins
56	Monocytes
50	Infection Control
32	Hepatitis
32	Herpesvirus 2, Bovine

Title: "KSHV Replication and the Natural History of AIDS-KS"

Thesaurus: Mesh2002(English)

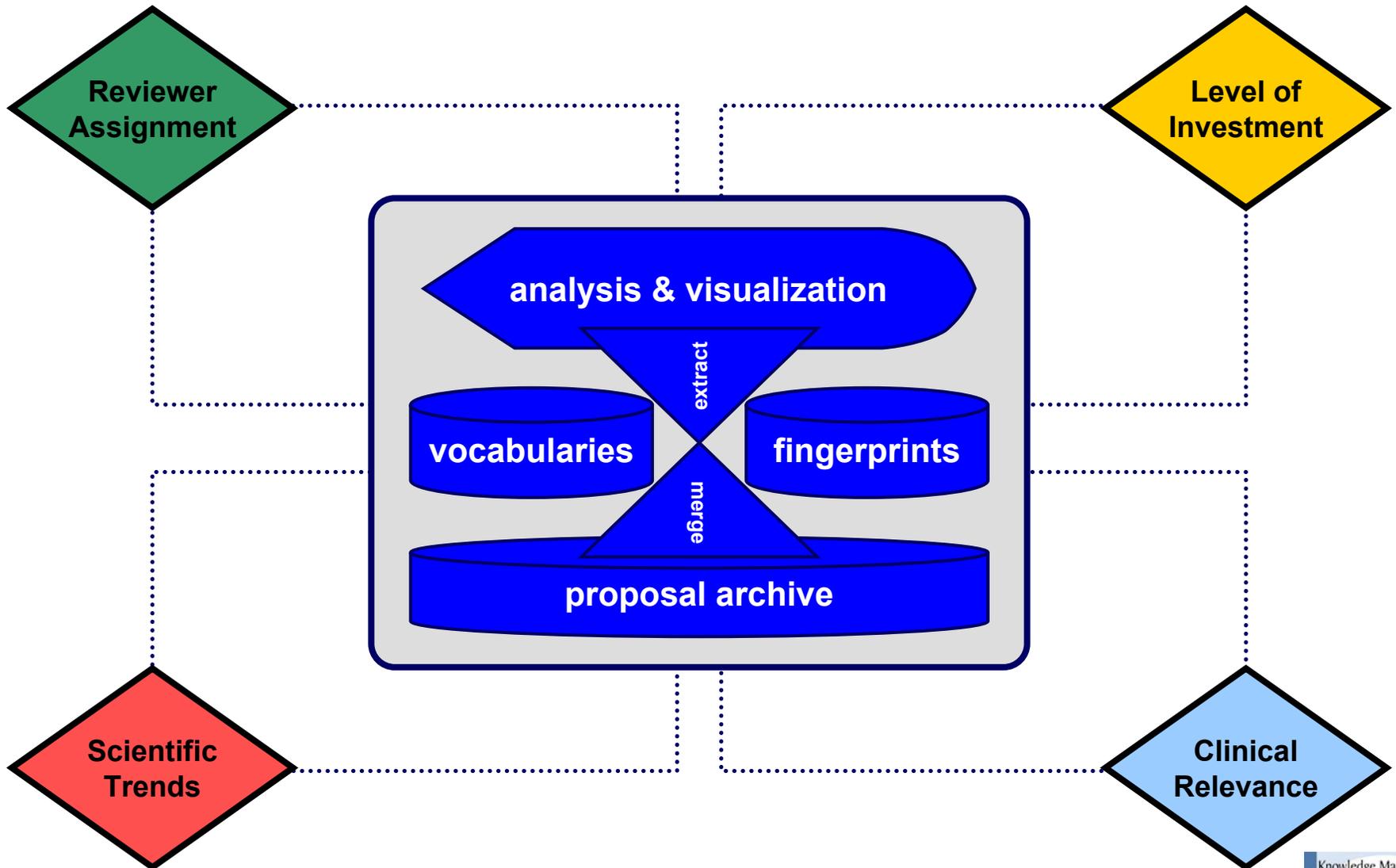
100	Herpesvirus 8, Human
9	Ecthyma, Contagious
8	Sarcoma, Kaposi
8	Plasma
7	Polymerase Chain Reaction
7	Africa, Western
4	Virulence
4	Herpesviridae
2	Nevada
2	Lymphocyte Count
2	Saliva
1	Ganciclovir
1	Viral Markers
1	ney U Test



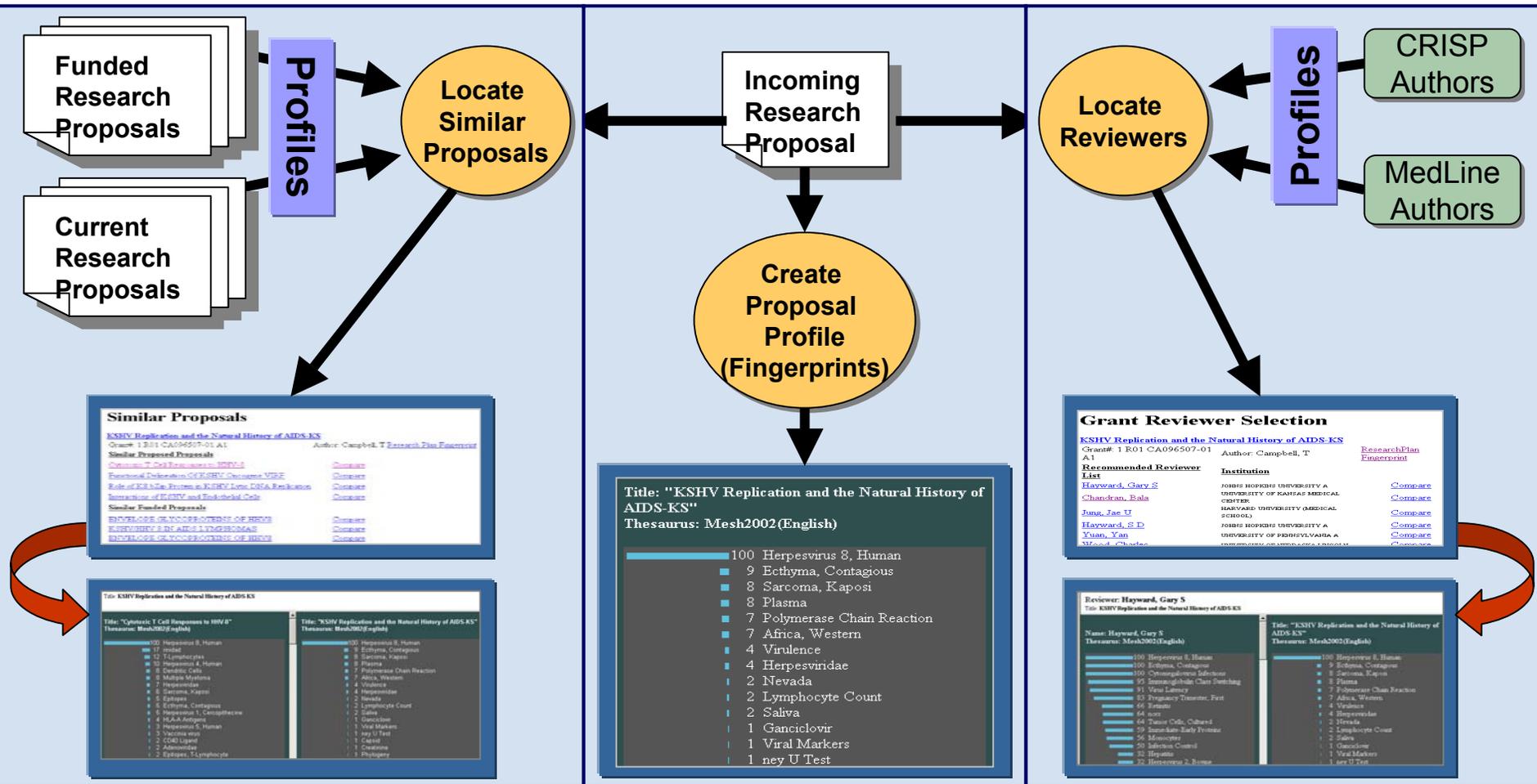
MitreTek KM Pilot

Dr. Bob Lewis

KM and the work of NIH



Reviewer Assignment



Dumais, S.T. and Nielsen, J. "Automating the Assignment of Submitted Manuscripts to Reviewers" In Proceedings of ACM SIGIR'92 ACM, 1992, pp. 233



Identifying Similar Research Proposals

Current Proposed and Previously Funded Proposals

Enter Grant Number in single quotes

'1 R01 CA096507-01 A1'

Find

List all Proposed and Funded Research Proposals containing similar research

Similar Proposals

[KSHV Replication and the Natural History of AIDS-KS](#)

Grant#: 1 R01 CA096507-01 A1

Author: Campbell, T [Research Plan Fingerprint](#)

Similar Proposed Proposals

[Cytotoxic T Cell Responses to HHV-8](#)

[Compare](#)

[Functional Delineation Of KSHV Oncogene VIREF](#)

[Compare](#)

[Role of K8 bZip Protein in KSHV Lytic DNA Replication](#)

[Compare](#)

[Interactions of KSHV and Endothelial Cells](#)

[Compare](#)

Similar Funded Proposals

[ENVELOPE GLYCOPROTEINS OF HHV8](#)

[Compare](#)

[KSHV/HHV 8 IN AIDS LYMPHOMAS](#)

[ENVELOPE GLYCOPROTEINS OF HHV8](#)

Identify Similar Proposals by comparing fingerprints

Title: **KSHV Replication and the Natural History of AIDS-KS**

Title: **"Cytotoxic T Cell Responses to HHV-8"**
Thesaurus: Mesh2002(English)

- 100 Herpesvirus 8, Human
- 17 rinidad
- 12 T-Lymphocytes
- 10 Herpesvirus 4, Human
- 8 Dendritic Cells
- 8 Multiple Myeloma
- 7 Herpesviridae
- 6 Sarcoma, Kaposi
- 5 Epitopes
- 5 Ecthyma, Contagious
- 5 Herpesvirus 1, Cercopithecine
- 4 HLA-A Antigens
- 3 Herpesvirus 5, Human
- 3 Vaccinia virus
- 2 CD40 Ligand
- 2 Adenoviridae
- 2 Epitopes, T-Lymphocyte

Title: **"KSHV Replication and the Natural History of AIDS-KS"**
Thesaurus: Mesh2002(English)

- 100 Herpesvirus 8, Human
- 9 Ecthyma, Contagious
- 8 Sarcoma, Kaposi
- 8 Plasma
- 7 Polymerase Chain Reaction
- 7 Africa, Western
- 4 Virulence
- 4 Herpesviridae
- 2 Nevada
- 2 Lymphocyte Count
- 2 Saliva
- 1 Ganciclovir
- 1 Viral Markers
- 1 ney U Test
- 1 Capsid
- 1 Creatinine
- 1 Phylogeny

Scientific Trends: Conduct "What-If" Analysis

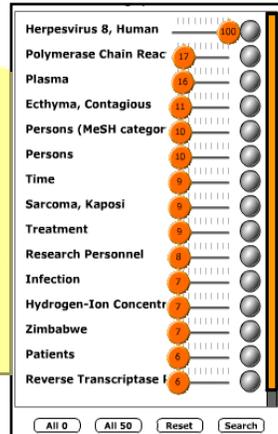
Augment Searches based on Concept Relevance

Enter Grant Number

'1 R01 CA096507-01 A1'

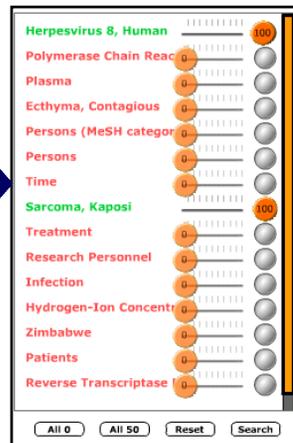
Search for similar proposals

Proposal Fingerprints



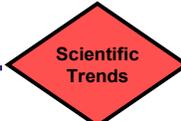
Similar Proposed Proposals	
Grant #	Author
Cytotoxic T Cell Responses to HHV-8	2 R01 CA082053-04 Rinaldo, C Compare
Functional Delineation Of KSHV Oncogene VIRE	1 R01 CA097933-01 Gao, Shou-Jiang Compare
Role of K8 bZip Protein in KSHV Lytic DNA Replication	1 R01 AI052789-01 YUAN, Y Compare
Interactions of KSHV and Endothelial Cells	1 R01 CA097934-01 Lagunoff, M Compare
Similar Funded Proposals	
Grant #	IRG
ENVELOPE GLYCOPROTEINS OF HHV8	5_R01CA082056-04 ZRG1 Compare
KSHV/HHV 8 IN AIDS LYMPHOMAS	5_R01CA068939-07 ZRG1 Compare
ENVELOPE GLYCOPROTEINS OF HHV8	R01CA82056-02 ZRG1 Compare
INTERACTIONS BETWEEN HIV AND KSHV	R01CA76958-03 ARRA Compare
INDUCTION OF KSHV REPLICATION BY HIV 1	R55CA83527-01A1 ZRG1 Compare

Modify Search Criteria on the fly



Revised List

Similar Proposed Proposals	
Grant #	Author
KSHV Replication and the Natural History of AIDS-KS	1 R01 CA096507-01 Campbell, T Compare
Functional Delineation Of KSHV Oncogene VIRE	1 R01 CA097933-01 Gao, Shou-Jiang Compare
Interactions of KSHV and Endothelial Cells	1 R01 CA097934-01 Lagunoff, M Compare
Cytotoxic T Cell Responses to HHV-8	2 R01 CA082053-04 Rinaldo, C Compare
Role of K8 bZip Protein in KSHV Lytic DNA Replication	1 R01 AI052789-01 YUAN, Y Compare
Similar Funded Proposals	
Grant #	IRG
HUMAN HERPESVIRUS 8 INFECTION IN ZIMBABWE	R03TW01123-02 ZRG1 Compare
The Role of T1.1 RNA in KSHV Replication	5_F32CA088516-02 ZRG1 Compare
HYPERVARIABLE ORF-K1 SIGNALING PROTEIN OF KSHV/HHV8	R01CA81422-02 ZRG1 Compare
KAPOSIS SARCOMA ASSOCIATED HERPESVIRUS VIRAL INTERFERON REGULATORY FACTOR	P51RR00168-39_0057 RIRG Compare



Scientific Trends

“Situational Awareness” and Hot Zones

Start Date: [Default](#) [Minimum](#)

End Date: [Default](#) [Maximum](#)

Date filters remain active across all selections and discovery tools.

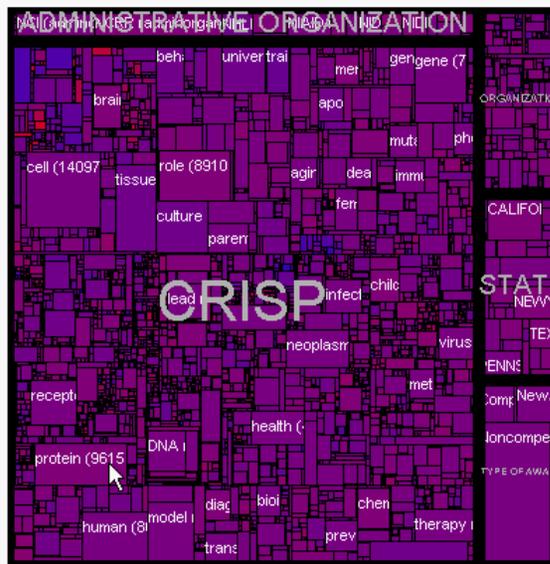
Entity Groups

type_of_award

Limit search to selection

Selected Entities

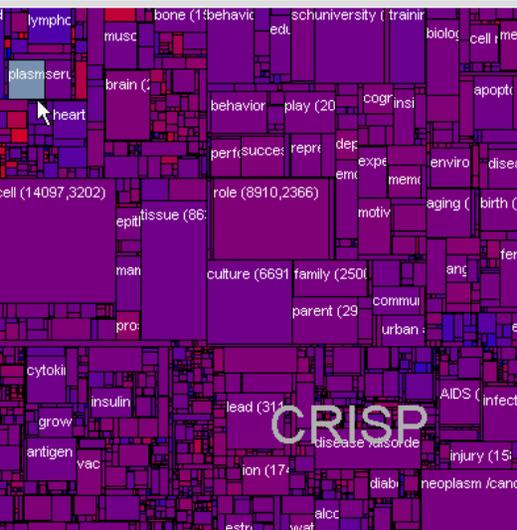
1. [Change of Grantee or Training In Institution \(Type 7\) \(t](#)
2. [Change of Institute or Division New \(Type 6\) \(type_of](#)
3. [Change of Institution or Division Competing Continuatio](#)
4. [Change of Institution or Division Continuation \(Type 8\)](#)
5. [Competing Continuation \(Type 2\) \(type_of_award\):32](#)
6. [Continuation \(Incrementally-Funded Contracts only\) \(T](#)



View extracted topics/entities where:

- Size = # of documents
- Color Intensity = recency of funding

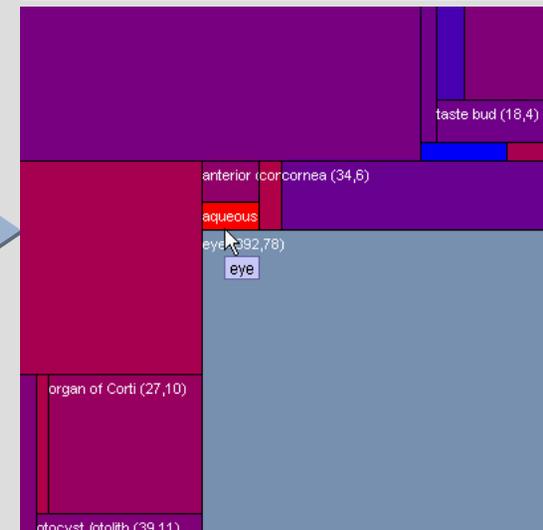
View Document Topics



Zoom in on Clusters



Locate Emerging Topic(s)



Proposal Trend Analysis

Identify Research Trends for Incoming Research Proposals

Enter Month

'January 2003'

Identify research area trend for each incoming application

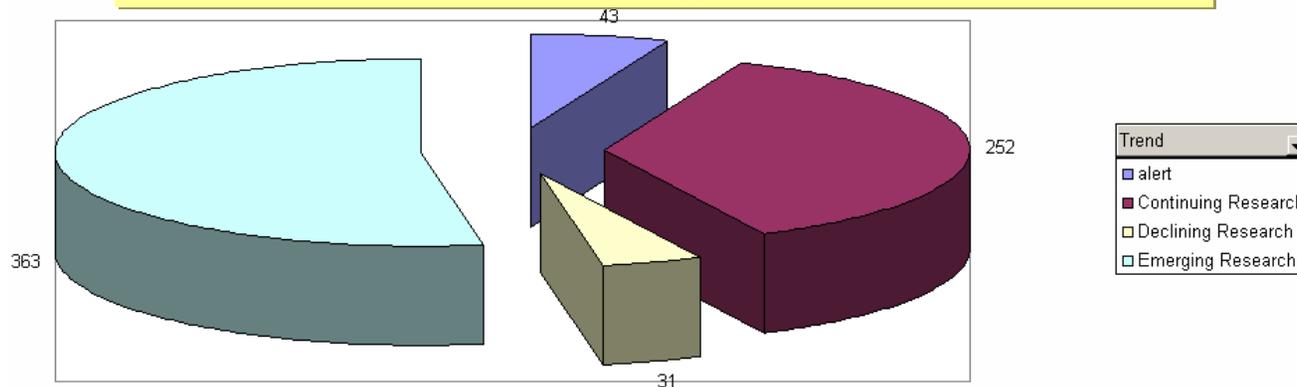
Criteria Matrix

Trend	Identify Similar Proposals	Grant Number - Identify Reviewers	Author	Title	Fingerprints
Emerging Research Area	Similar Proposals	1 R01 DA015728-01 A1	"Richelson, E"	Novel Neurotensin Analogs To Treat Nicotine Dependence	Fingerprints
Emerging Research Area	Similar Proposals	1 R01 DA015083-01 A2	"Richelson, E"	A Neurotensin Agonist for Psychostimulant Abuse	Fingerprints
Declining Research Area	Similar Proposals	1 R01 CA101694-01	"Price, J"	"Auto Scan, Score & Visualize Cancer Tissue Microarrays"	Fingerprints
Emerging Research Area	Similar Proposals	2 R01 EY012355-04 A1	"Guy, J"	Leber Hereditary Optic Neuropathy: Gene Therapy	Fingerprints
Emerging Research Area	Similar Proposals	1 R01 AI055366-01 A1	"Haller, D"	In Vitro Correlates of Rapamycin Therapy in MS Patients	Fingerprints

Similar Proposed Applications	Similar Funded Applications	Research Trend
✓	✓	Continuing Research Area
✓	✗	Emerging Research Area
✗	✗	Alert Areas
✗	✓	Declining Research Areas

Research Trend Analysis for the month of January 2003

Total Number of applications: 689



LoI with Collaborative System-of-Systems

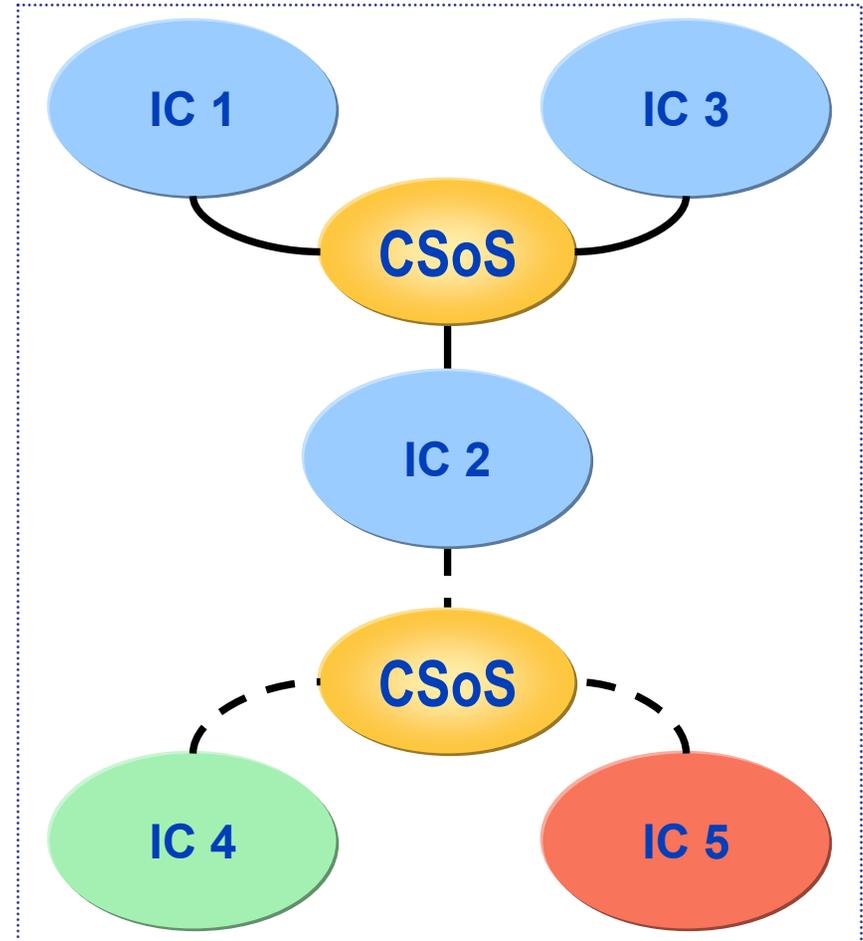
Architecture for System Integration

Challenge

- Promote seamless information sharing across multiple organizations sharing a common objective.

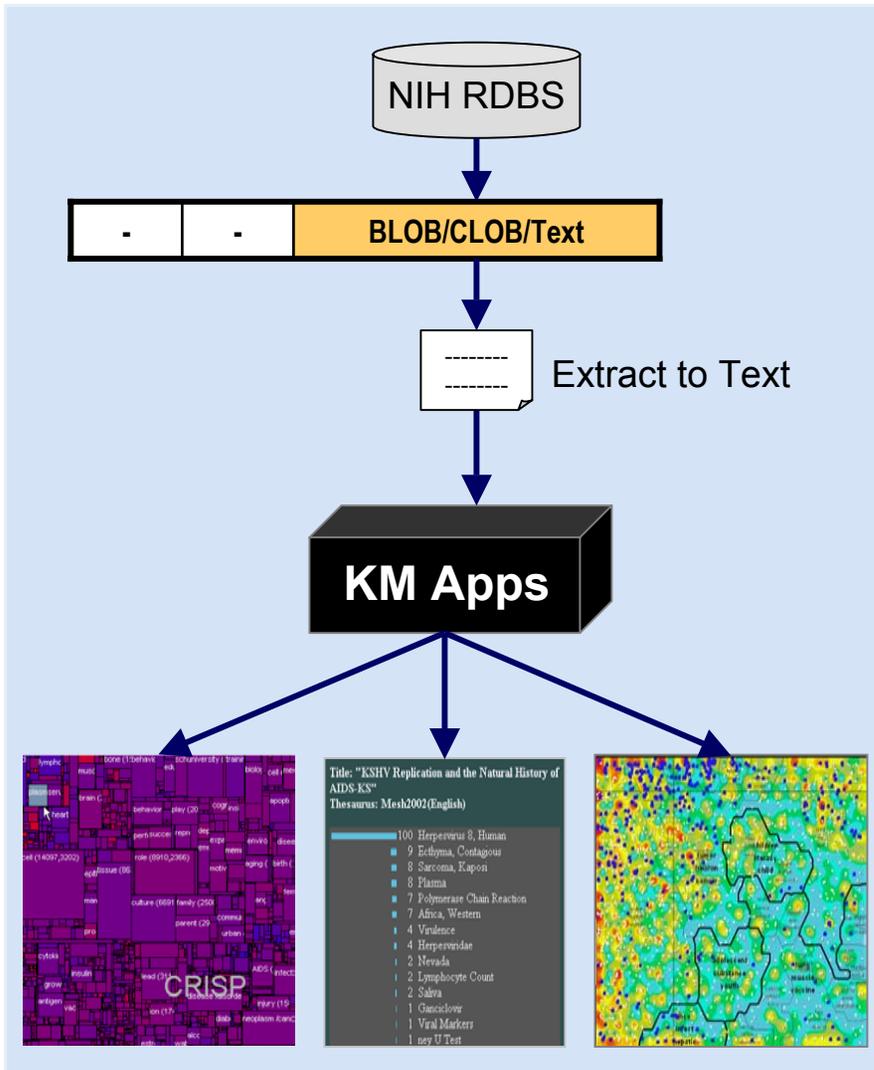
Solution

- Insert an Integrated System-of-Systems (ISS) to “buffer” each organization.
- Increase the role and scope of the “buffer” over time (*i.e.*, *investigation* → *topic* → *all information*)



Clinical Relevance: Accessing Clinical Data

Adding Value to Structured Data Sources



Utilize advanced visualization techniques to provide improved access to clinical data for interpretation of basic research and assessment of discoveries

Clinical RDBs have text fields that store significant clinical information

Currently, clinical researchers can, at best, search these text fields by keywords (needle in haystack approach)

If text fields could be fingerprinted on-the-fly, a researcher could:

- Search for similar cases and their treating clinician
- Search for similar treatment outcomes (negative or positive)

Approach could be reused in any RDB (IMPAC II, CRISP, etc.) for an almost unlimited variety of applications

K-Layer

One Stop Search

Enter Grant Number

1 R01 AI04352-06 A1 Find

Genes virulence salmonella

Search by Proposal or Body of Text

Fingerprint

Similarity Finder

Expertise Locator

Modify Search Criteria on-the-fly

Fingerprint Modifier

Genes 100

Virulence 45

Salmonella 35

Promoter (Genetics) 31

Mice 30

Transcription, Genetic 24

Lipids 24

Proteins 24

Cells 21

Peptides 20

Infection 15

Salmonella typhimurium 15

Research Personnel 15

Programs [Publication] 14

Operon 13

Save this Fingerprint

Add concept: Add

All 0 All 50 Reset Search

Similar Proposed Proposals	Grant# & Fingerprints	Author	Matching Score
Host Genes Targeted By Salmonella Virulence Factors	1 R01 AI057953-01	"Aballay, A"	73.5794
Molecular and Structural Bases of Polymyxin Resistance	2 R01 AI042236-06	Groisman, E	63.0918
Comparative Genome Analysis of Salmonella Species	2 R01 AI034829-14 A1	McClelland, M	62.2984
Alternative Model Hosts for Yersinia Pestis Pathogenesis	1 R01 AI057665-01	"Aballay, A"	59.9095
MOLECULAR GENETIC ANALYSIS OF	R01AI24533-12	Curtiss, T. T.	54.9756

Recommended Reviewers(CRISP)

[Miller, Samuel I](#)

[Guiney, Donald G](#)

[Baumler, Andreas J](#)

[Heffron, Fred L](#)

[Galan, Jorge E](#)

[Curtiss, Roy I, Iii](#)

[O'brien, Alison D](#)

[Contag, Christopher H](#)

[Miller, Virginia L Pi](#)

[McClelland, Michael](#)

Recommended Reviewers (MedLine)

[Miller S I](#)

[Jones B D](#)

[Gunn J S](#)

[Ernst R K](#)

[Schwan W R](#)

[Hu L](#)

[Kopecko D J](#)

Fingerprint Modifier

Genes Req

Virulence 0

Salmonella 0

Promoter (Genetics) 0

Mice 0

Transcription, Genetic 0

Lipids 0

Proteins 0

Cells 0 Req

Peptides 0

Infection 0 Req

Salmonella typhimurium 0

Research Personnel 0

Programs [Publication] 0

Operon 0

Save this Fingerprint

Add concept: Add

All 0 All 50 Reset Search

Modified Search Results

Fingerprint Modifier

Genes Req

Virulence 0

Salmonella 0

Promoter (Genetics) 0

Mice 0

Transcription, Genetic 0

Lipids 0

Proteins 0

Cells 0 Req

Peptides 0

Infection 0 Req

Salmonella typhimurium 0

Research Personnel 0

Programs [Publication] 0

Similar Proposed Proposals	Grant# & Fingerprints	Author	Matching Score
Cell-Based Functional Genomics of Trypanosome Infection	1 R01 AI054725-01 A1	"Villalta, F"	77.3215
by	1 R01 AG021173-01 A2	Xu, H	66.1166
Use of Microarrays to Understand Systemic Arthritis	1 R01 AR050770-01	Pascual, V	58.8061
Gene Expression,	2 R01	Soriano,	50.0000

Recommended Reviewers(CRISP)

[Levy, David E](#)

[Collman, Ronald G](#)

[Margolis, Todd P](#)

[Levy, David E](#)

[Harrod, Kevin S](#)

[Dornburg, Ralph C](#)

[Albritton, Lorraine M](#)

[He, Johnny J](#)

[O'callaghan, Dennis J](#)

[Patterson, Catherine E](#)

Recommended Reviewers (MedLine)

[de Avalos Silvia Vaena](#)

Ad-Hoc Community of Practice

Importing Experts and Content

The screenshot displays the Groove KM Space interface. At the top, the title bar reads "KM Space" and "Files". The user "Rueda (Manager)" is logged in. The main area shows a file list with columns for Name, Modified Date, and Modified By. The file list contains five entries related to Salmonella research. A "Send Invitation - Groove" dialog box is open in the foreground, showing the invitation details for "Rueda" in the "KM Space" shared space, with the role "Manager". The message text is "Please join to discuss Fingerprint results." The dialog also includes options for attachments, a checkbox for "Require acceptance confirmation", and "Invite" and "Cancel" buttons.

Files

Name	Modified Date	Modified By
Host Genes Targeted By Salmonella Virulence Factors	10/8/2003 10:48:1...	Rueda
Salmonella Gene Expression In Complex Environments	10/8/2003 10:49:1...	Rueda
Alternative Model Hosts for Yersinia Pestis Pathogenesis	10/8/2003 10:48:3...	Rueda
Comparitive Genome Analysis of Salmonella Species	10/8/2003 10:48:5...	Rueda
Salmonella Antimicrobial Peptide Resistance	10/8/2003 10:47:4...	Rueda

Send Invitation - Groove

To: Rueda (Recipients)

Shared Space: KM Space

Role: Manager

Message: Please join to discuss Fingerprint results.

Attachments: File... URL... Remove

Require acceptance confirmation

Invite Cancel

Report on a CSR Implementation

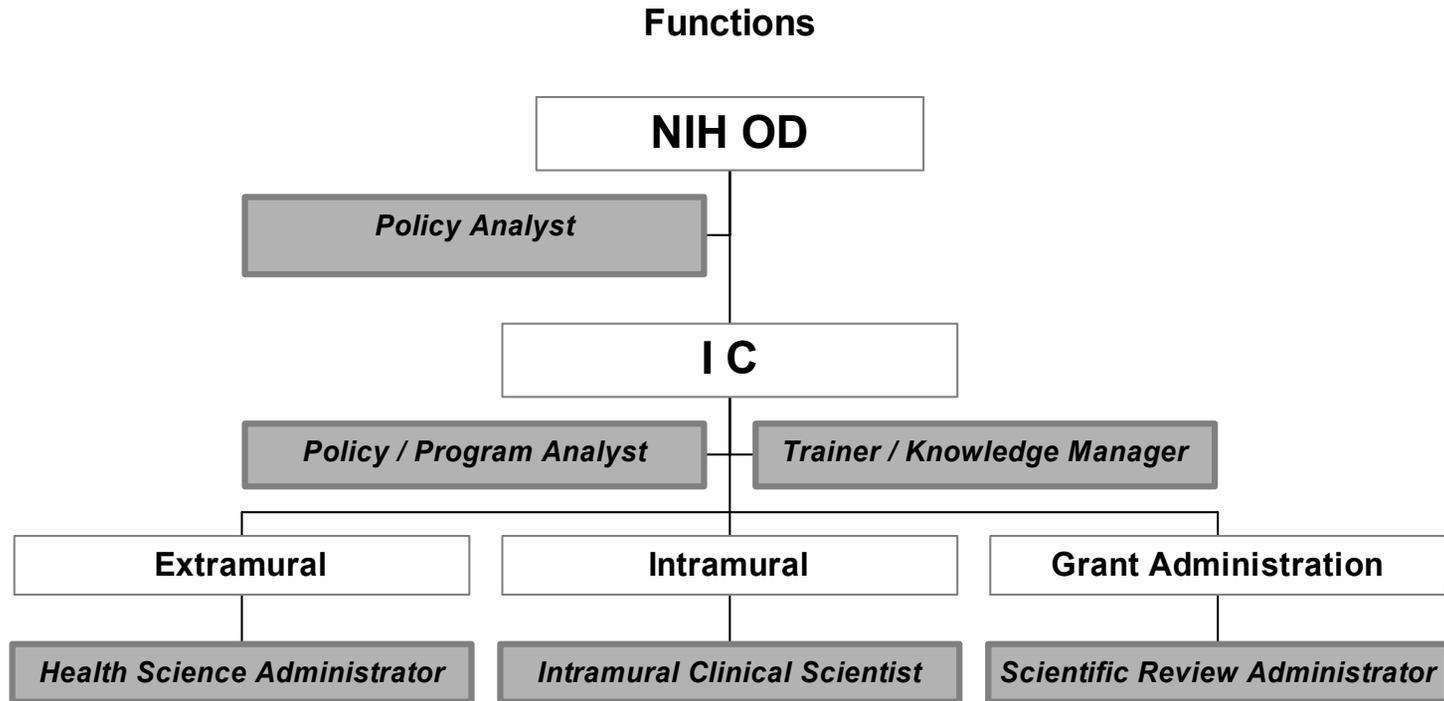
**Computerized Reviewer
Assignment and Search Program
Arthur Petrosian**

Next Steps

Benefits Sought

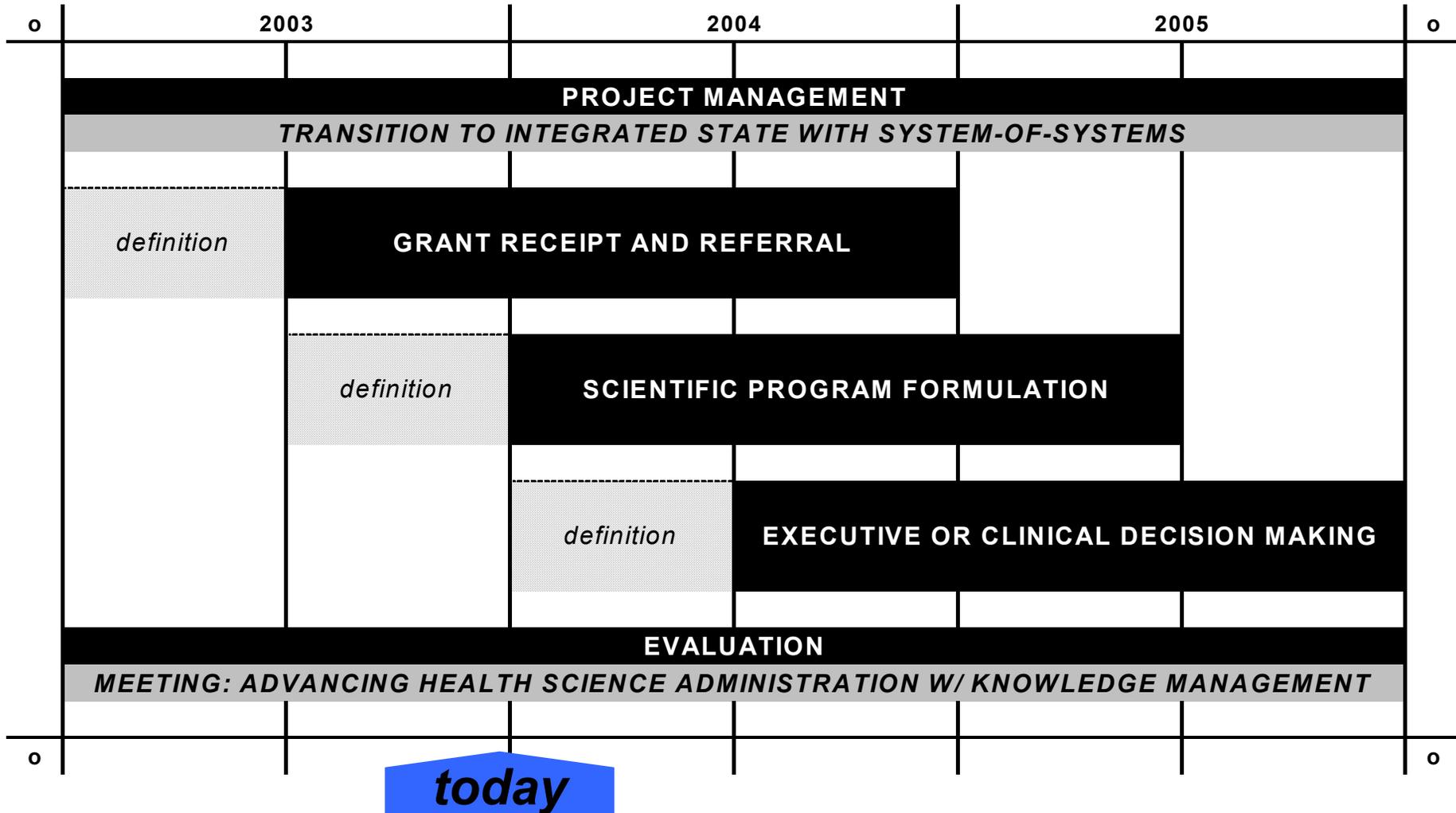
- **Level of investment (Lois) analysis** from a trans-NIH perspective for the NIH executive and analyst
- **Timely integration of science trends** in program formulation for the health science administrator
- **Accurate handling and referral** of incoming grant proposals for the scientific review administrator
- **Better access to clinical data** for interpretation of basic research and assessment of discoveries

Target Functions and Aims



AIM: to enable 6 mission-critical functions and satisfy 200 professional staff in 10 ICs by 2005

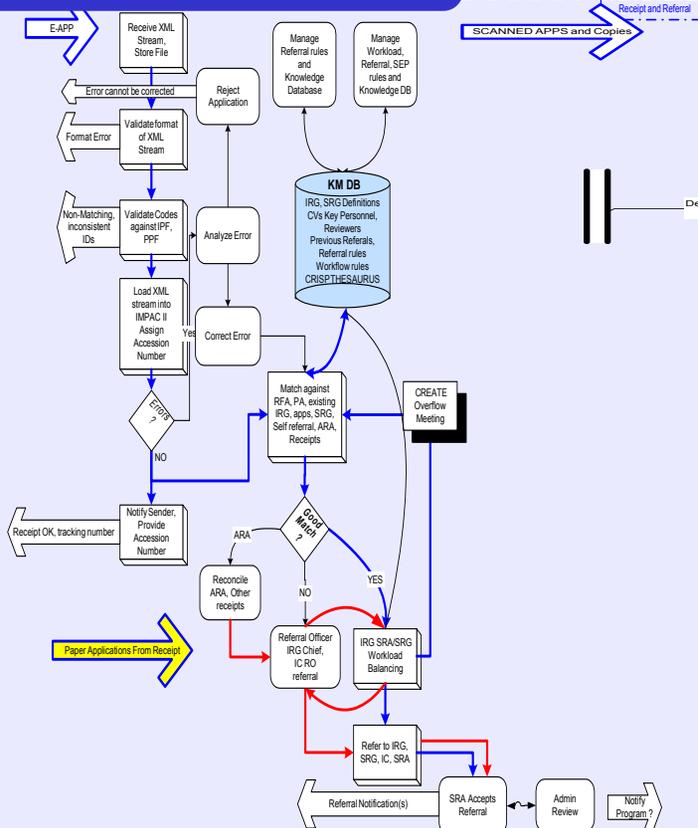
Project Overview



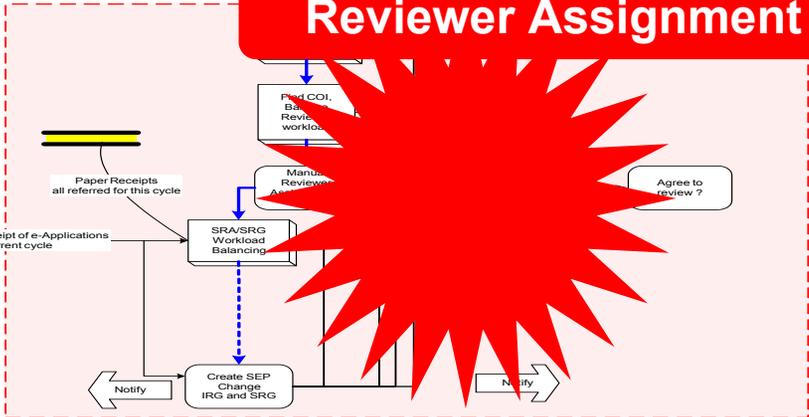
Background

Phase One Scope: Reviewer Assignment

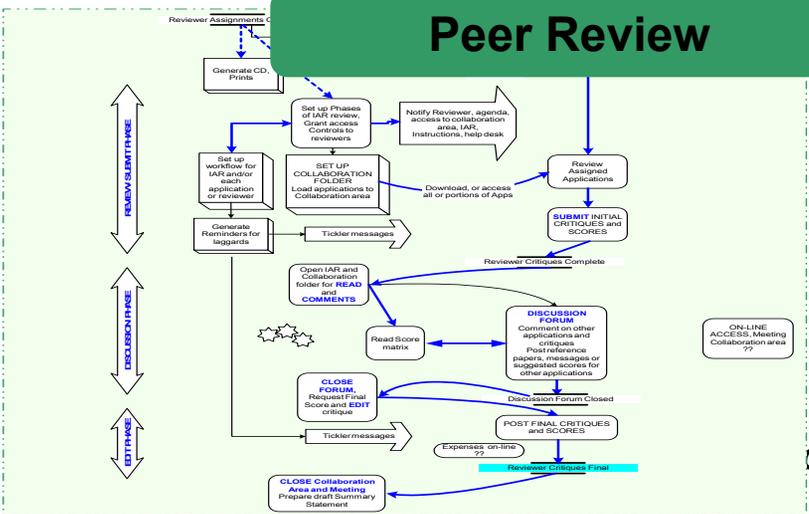
Receipt / Referral



Reviewer Assignment

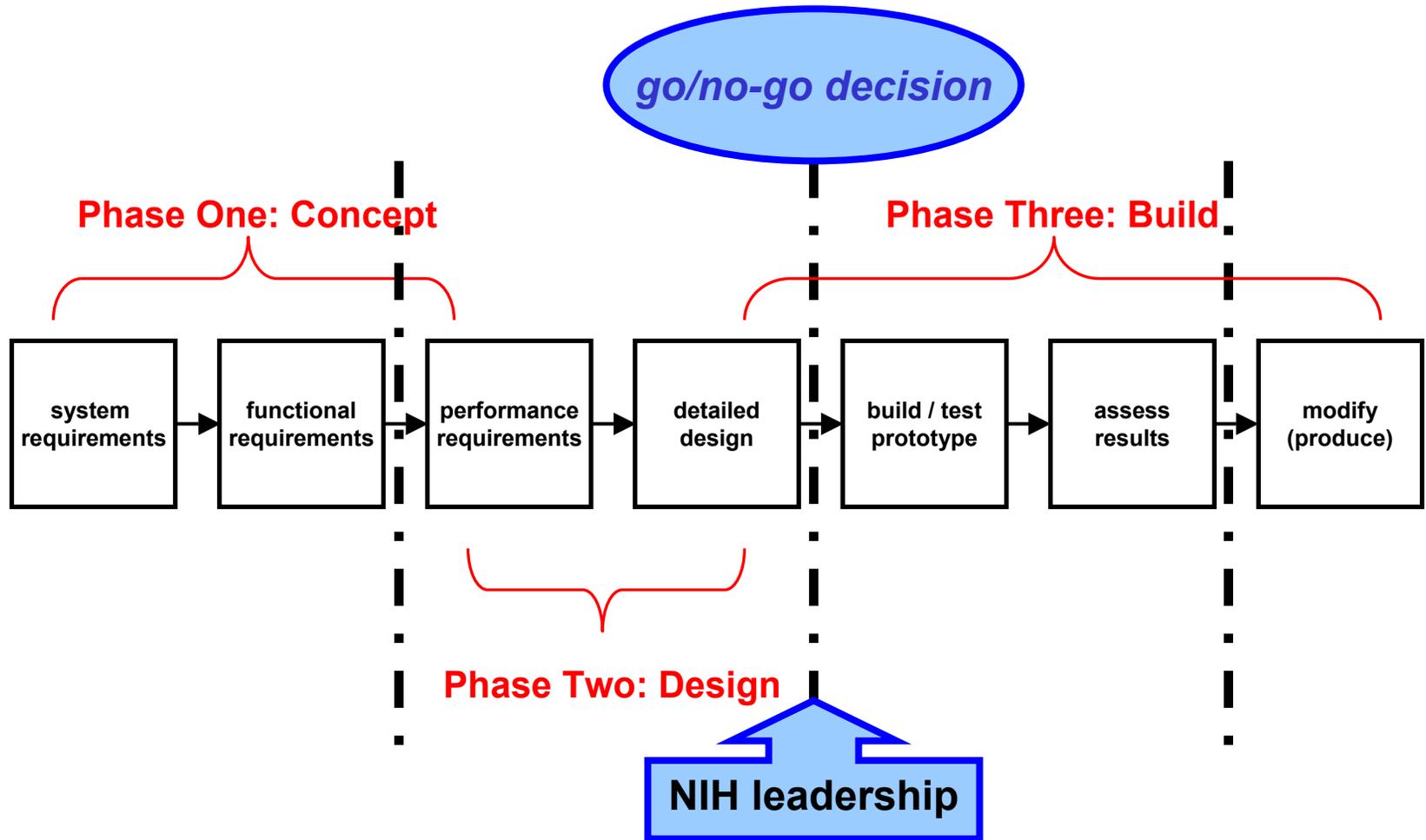


Peer Review



Prepared by JJ Mauer, Ekagra Software Tech

Ready for “build” stage (*and expansion*)



Completed requirements capture

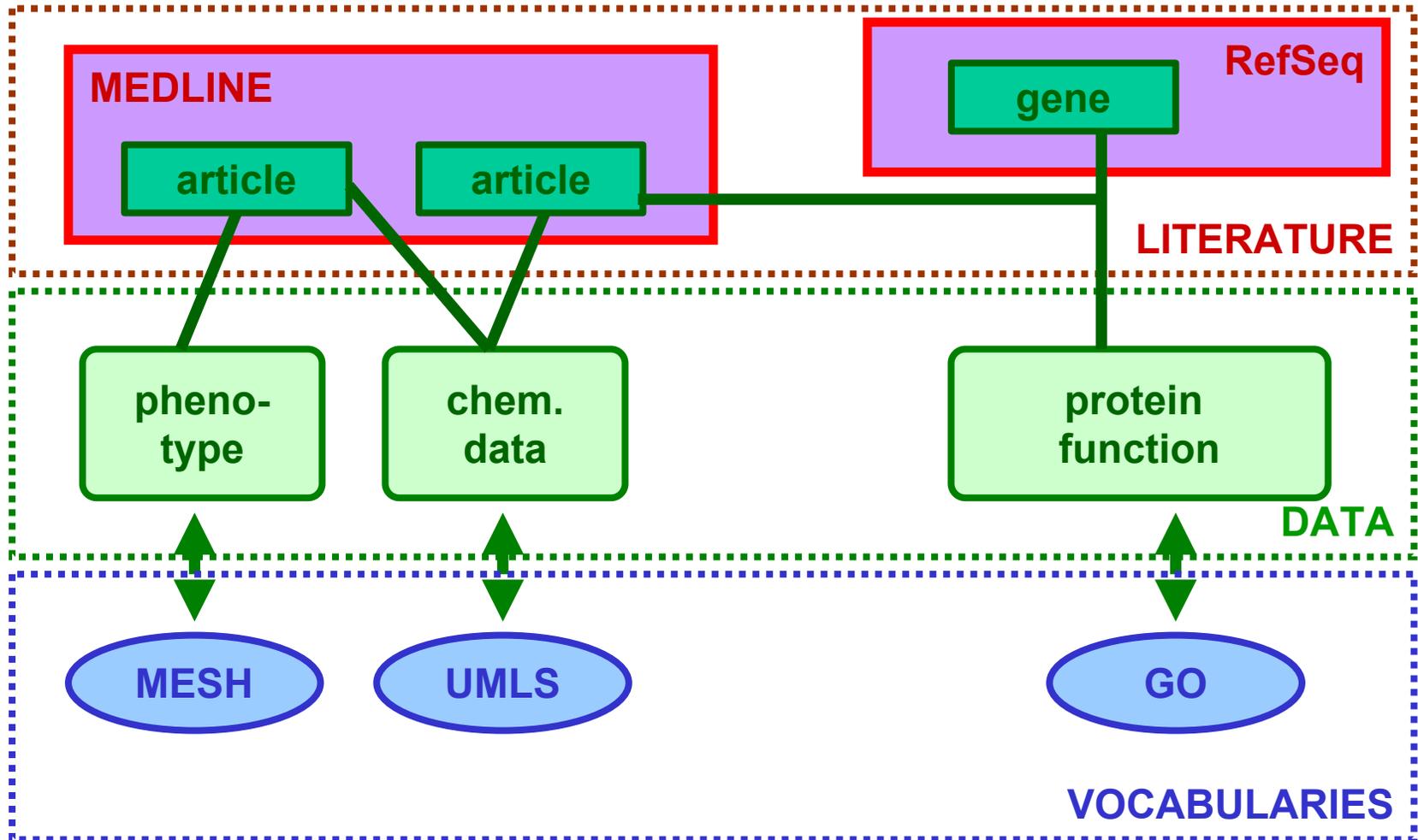
Core functionality:

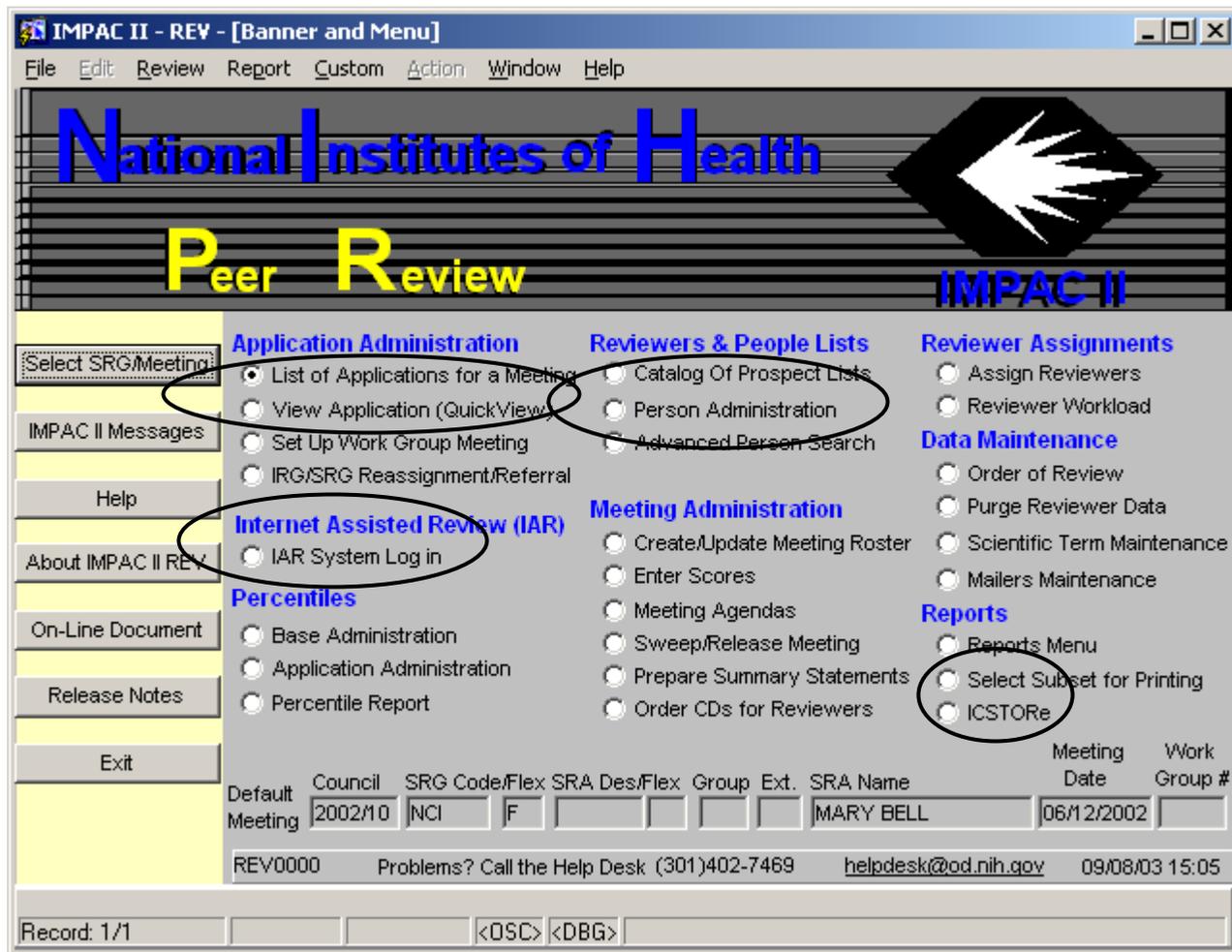
- Compare composite works of specific people to documents
- Compare documents to documents (both individual and aggregate)
- Compare the works of specific people to those of other people
- Search for people (or documents) with a block of input text

Desired functionality:

- Profile archives: users access a stored fingerprint to search for others
- Precision: users edit fingerprints to include/exclude specific terms
- Profile comparison: users view/compare multiple fingerprints at once
- Personal taxonomies: users extend a MESH taxonomy to own field/task
- Forecasting: users work with R21s to find emerging technology grants

Stretch Goal: Clinical Relevance





The Banner screen in Peer Review provides access to the IAR System (Web-based), QuickView, Person Admin and Person Search capabilities, and the ICSTORE common module.

END

Richard W. Morris, PhD Office of the Director
Division of Allergy, Immunology, & Transplantation
National Institute of Allergy & Infectious Diseases

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TEL 301-594-7634; FAX 301-402-2571; EMAIL rmorris@niaid.nih.gov